

# Vacuum Sealed Roof Insulation

## What is this Technology?

The Vacuum-Insulated Panel (VIP) is a thin, highly efficient insulation material that can provide thermal resistance up to 5 times greater per unit of thickness than polystyrene or polyurethane insulation and up to 10 times greater than glass wool, with state of the art product achieving R50 in one-half inch thickness. This technology is particularly relevant for retrofit applications, where the thickness of insulation using incumbent technologies would require an increase in parapet height.

## Why is GSA Interested?

VIP technology has the potential to significantly reduce energy use when applied to retrofits in cold-climate low-rise installations, where roof area is a significant fraction of overall surface area.



**ENERGY EFFICIENCY** U.S. Department of Energy simulation studies have shown that increasing roof insulation from R-15 to R-50 reduces heating losses through the roof significantly. This benefit is best realized in heating dominated climates.



**COST EFFECTIVENESS** VIPs are projected to remain an emerging technology for at least the next five years. Industry forecasts show this technology achieving market parity for a given insulation value by 2020.



**DEPLOYMENT POTENTIAL** This technology is most applicable to low-rise/large-floor-plate retrofits in cold climates. This assessment will identify the specific criteria, including building type, climate, and use needed to prioritize its potential for deployment by GSA, should its performance prove out.

*Adapted from a report by the National Renewable Energy Laboratory. The Green Proving Ground program, in association with a federal laboratory, is subjecting VIPs to real-world measurement and verification in GSA buildings. Findings from that investigation will be available in late 2013 or early 2014.*